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PARASITIC BEES OF THE GENUS *COELIOXYS* FROM THE BELGIAN CONGO¹

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The species of *Coelioxys* may be divided into two groups, *Coelioxys* proper, in which the eyes are hairy, and *Liothyrapis*, in which they are bare.

LIOTHYRAPIS Cockerell, 1911

Two species were found by Lang and Chapin, as follows.

Coelioxys (Liothyrapis) verticalis Smith, 1854

Small females, about 11 mm. long, or less; mesothorax coarsely striate; apical sternite rounded and obtuse at end.

Faradje, twelve, November, December, January, April. Aba, 3° 50' N., 30° 10' E., one, December. On the wide distribution (south to Natal) see Rev. Zool. Bot. Afr., XXIII, 1932, p. 26.

Coelioxys (Liothyrapis) torrida Smith, 1854

Size variable; a large one from Boma is almost 17 mm. long; the smallest one from Faradje only about 11.4 mm.

Stanleyville, March and May; Faradje, November, December, and January; Poko, August; Boma, June. Also taken by J. Ogilvie at Tanga, Tanganyika Territory, and Mozambique, Portuguese East Africa, in June. Thus it extends right across Africa. Friese, in his key to females ('Die Bienen Afrikas'), has this species in the wrong section.

The wide distribution of these insects is remarkable. *C. maculata* Friese, a large species described from the Transvaal, is in the British Museum from Delagoa Bay (collector unknown), and the following places in Uganda: Northern Buddu, 3800 ft., September (S. A. Neave); Kampala, April (C. C. Gowdey); Entebbe, August (Gowdey), and January (Neave). There is also a specimen from F. Smith's collection labelled "W. Africa."

The *C. subdentata* group is even more widely distributed; whether it consists of one species, with local races, or of two or more, is at present uncertain. Smith described it from the male, with ferruginous tarsi,

¹Scientific Results of the Congo Expedition. Entomology No. 29.

from the Cape Province. *C. lativentris* Friese, females with the tarsi "rotbraun," appears to be the same species. There is, however, a very widely distributed insect, with dark anterior wings and entirely black legs, which I had regarded as a form of *C. subdentata*, and should not now separate, were it not for the fact that Brauns in 1930 described it as *C. lativentrionides*, giving apparently adequate characters to separate the female from *C. lativentris* Friese, which I suppose to be the female of *C. subdentata* Smith. An older name for this black-legged insect is *C. umbripennis* (*C. decipiens* var. *umbripennis* Friese, 1922), and this must hold, unless (as seems very possible) the *C. cherenensis* Friese, 1913, from Abyssinia should be considered a race of same species. There is also a still older name, *C. neavei* Vachal, 1910, which may be applicable. In the British Museum I find *C. umbripennis* from Matjesfontein, Cape Province (Turner); Fort Jameson (Neave), Upper Luangwa River (Neave), Niamadze River, near Nawalia (Neave), and Chilanga (R. C. Wood), all in N. E. Rhodesia; Kotakota, Nyasaland (J. E. S. Old); Nasisi Hills, twenty miles north of Mumias, British E. Africa, 4800 ft. (Neave); Chiromo, British E. Africa (J. E. S. Old); and the following places in Uganda, North of Lake Isolt, 3700 ft. (Neave); Kafu R., near Hoima, Kampala Road, 3500 ft. (Neave); banks of Nile near Kakindu, 3400 ft. (Neave); between Jinja and Busia or Mbwasog, E. Busoga (Neave). The Matjesfontein females have more white hair on under side of abdomen than those from more northern (northeastern) regions, but there is no sharp line of division.

From Yapi, Gold Coast, November (J. J. Simpson), comes a distinct subspecies, which I call *C. umbripennis nigriventris*. It lacks (in both sexes) the distinct white hair-bands on under side of abdomen, and the spines of the axillae are remarkably thick and obtuse. The type (to be further described in a paper now being prepared) is a female. Friese described his *C. decipiens* var. *umbripennis* from two females, one from Senegal, the other from Natal. I designate the Natal form as the type, as it resembles *C. decipiens* in having ventral hair-bands on abdomen. It is quite possible that the Senegal one was *nigriventris*, but we have no information on this point.

Apparently *C. maculata* and *C. umbripennis* have spread up and down East Africa, and across to West Africa north of the Equatorial forest, but are not found in the basin of the Congo. No doubt this distribution is connected with that of species of *Megachile* on which they are parasitic.

COELIOXYS Latreille, 1809 (typical subgenus)**Coelioxys (Coelioxys) chubbi** Cockerell, 1920

Described from Durban, Natal. Three females taken by Lang and Chapin differ slightly in the yellowish tint of the pubescence, but are positively the same species. They are from Stanleyville, April, and Thysville, June.

There is some affinity with *C. labrosa* Friese, 1914, especially with regard to the hair at end of clypeus (dense and yellowish when fresh), but the shining abdomen, narrower at end, will readily distinguish it.

Coelioxys (Coelioxys) planidens Friese, 1904

Two males from Boma, Belgian Congo, June (Lang and Chapin). The face is very narrow. The species is allied to *C. liberiensis* Cockerell. It was known from the east coast (Delagoa Bay), so is now found to extend right across Africa.

Another very widely distributed species, extending from the Mediterranean region to South Africa, is *C. afra* Lepeletier. The southern form may be regarded as a subspecies, for which the name *pusilla* Gerstaecker, described from Mozambique, is available. I have both sexes of this form from Porto Amelia, June (A. Mackie, J. Ogilvie).

It would appear that the evolution of the parasitic *Coelioxys* has not kept pace with that of the host genus, *Megachile*. This seems especially evident in Australia, where *Coelioxys* is represented by four species, *Megachile* by about 125. But in Australia it is practically certain that the *Megachile*-fauna is for the most part a very ancient one, whereas *Coelioxys* appears to have arrived in comparatively recent times. It is in South America that *Coelioxys* is most abundant and diversified, fairly keeping pace with the large *Megachile*-fauna. Perhaps *Coelioxys* originated in the Neotropical region and has spread thence over the world; but some of the Old World members of the genus represent distinct and peculiar groups, which we suppose to have developed in the regions where we find them. An intensive study of the *Coelioxys* of the world, especially dealing with the biological aspects, would certainly be very interesting and worth while.

Stoeckhert (1932, Deutsch. Ent. Zeit.) gives an excellent account of what is known of these matters in Central Europe. He brings out the fact that although *Coelioxys* belongs to Megachilidae, and is in general a parasite of *Megachile*, it nevertheless has in certain cases shifted to other genera and other families. *C. rufescens* Lepeletier is a regular

parasite of *Anthophora parietina* Fabricius. *C. polycentris* Foerster is believed to be parasitic on *Tetralonia nana* Morawitz. Several species of *Coelioxys* have been raised from nests of *Osmia*. Most of these records appear well established, though confusion may arise from the fact that (as we have observed in Colorado) *Osmia* and other insects nest in the old burrows of *Anthophora*.

NOTE.—*Megachile sticede* Cockerell, 1935, American Museum Novitates, No. 783, p. 7, footnote, is a misprint for *M. sticeae*.